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AUTHOR Henderson, Cathy; Ottinger, Cecilia
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ABSTRACT

Recent and projected trends in the economy and implications for college graduates are considered. Projected changes during 1982-1995 in the employment of college-educated workers are indicated for about 85 occupations, using percentages indicating fast to slow increases/decreases in opportunity. Employment forecasts for the following types of workers are also offered: professional, technical, and service workers; managers, sales, and craft workers; and operatives, laborers, private household workers, and farmers. Factors that affect job satisfaction and the effect of underemployment on work attitudes are also addressed, along with the effect of labor market shifts on students' choice of major. Finally, advice to college graduates on finding a job is included. It is suggested that college graduates have increased job opportunities and a lower probability of unemployment. However, a continued tight labor market for college graduates is projected. A slight surplus of college graduates relative to the economy's demand for highly educated workers will likely mean that, through 1995, one in four graduates will accept employment in a position that traditionally has not required a college-trained worker. The largest job growth is expected in the fields of health, engineering, and computer sciences. (SW)

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EMPLOYMENT PROSPECTS FOR COLLEGE GRADUATES[1]

by Cathy Henderson*
&
Cecilia Ottinger

Introduction

With rising college costs, students are asking more career-related questions then ever before:

- What is the job outlook for college graduates?
- Will my investment in a degree pay off financially?
- What are good fields for me to consider (and to avoid)?
- How can I increase my chances of finding a job after graduation?

Traditionally, college graduates have experienced competitive advantages in the labor market, including lower unemployment rates, higher labor participation rates and greater expected lifetime earnings. Recent college graduates continue to maintain these advantages, but significant demographic and economic changes in the labor market have affected their employment prospects. This paper reviews recent and projected trends in the economy and the implications for today's college graduates as they enter the labor market. It points out that:

- A college degree remains a good investment. Persons with a college degree have increased job opportunities and a lower probability of unemployment when compared to those with less schooling. They are also likely to have higher lifetime earnings.
- Some occupations are projected to experience faster growth than others. The largest job growth is expected in the fields of health, engineering and computer sciences.
- Job seekers can increase their chances of finding a good job by researching the job market to find out what the forecasters predict about specific fields, by sharpening their communication skills and by getting actual work experience while in college.

Labor Force Participation and Unemployment Levels

Statistics published by the Department of Labor have consistently shown that college graduates participate in the labor force at higher rates and suffer less unemployment than high school graduates. (See Table 1).

Table 1
Labor Force Participation and Level of Education
1983

	(Adult Workers Ages 25-64)	
1983 Indicators	**High School Graduates**	**College Graduates**
Labor force participation	74.5%	87.0%
Unemployment level	10.0%	3.5%[2]

Note: Although the percentages varied, these relationships held up for both men and women and across white, black, and Hispanic groups.

*Cathy Henderson, formerly a Research Associate of ACE, is a higher education consultant in Washington, D.C.; Cecilia Ottinger is a Research Associate in the Division of Policy Analysis and Research.

Higher levels of education appear to increase employment opportunities for college graduates of all ethnic backgrounds. A 1982 U.S. Commission on Civil Rights study examined the relationship between unemployment rates and educational attainment. As a group, the unemployment levels of whites declined steadily as higher levels of education were attained. Among blacks and Hispanics, however, that relationship did not occur until the baccalaureate level was reached. The economic return for minorities who graduate from college, then, appears to be substantially higher than for their minority colleagues who drop out prior to graduation.[3]

Income Expectations

Aside from working conditions or job stability, how do the average incomes of high school and college graduates compare? This issue has received close scrutiny since 1975, when Richard Freeman documented a decline in the relative income advantage of college graduates over high school graduates. Freeman concluded that college was a less valuable investment than it had been in the 1960s.

To put Freeman's work in perspective, it is important to examine the forces, both demographic and economic, that were at work in the 1960s and 1970s. Between 1960 and 1970, high-tech industries, which employ a great many engineers and other highly skilled workers, rapidly expanded. Likewise, as the baby-boom generation was swelling the elementary and secondary classrooms, teachers were hired in unprecedented numbers. Government agency staffs at federal, state, and local levels also mushroomed. In each instance the demand for educated labor was high, and recent college graduates (particularly women and minorities) found well-paying positions.[4]

Then, as the baby-boom generation moved through college in the 1970s, the general economic slowdown caused these very occupations to reduce their hiring. Not only were students graduating from college at the average rate of 1.2 million per year but a high proportion also wanted to work. In effect, twice as many college graduates were entering the labor market between 1969 and 1978 as had entered during the 1962-1969 period.[5]

In the early 1980s, growth in the high-tech industries remains slow, and teaching opportunities are still limited; government openings are down as well. Although economists forecast a recovery from the 1982 recession, few project a sustained period of strong economic growth during the upcoming decade.

So, does it pay to get a college degree these days? The National Center for Education Statistics (NCES) recently studied the hourly wage rates of young men and women to see if college graduates were earning more than their contemporaries with only high school diplomas. They found evidence that

> over the long term for both men and women, the financial returns of a college education may repay the actual costs of schooling, as well as the wages lost by not working during the college years.[6]

These results differed somewhat by sex. Women who had completed a four-year college degree surpassed within two years the average earnings of their colleagues who had worked directly after completing high school. For men, the period was longer; the crossover point in earnings did not occur until four years after college graduation.

It is clear that the personal, economic, and social returns on an investment in postsecondary education have to be reviewed over a long period of time. Although the earnings of nongraduates have risen faster in recent years than the earnings of graduates, on average, college graduates still enjoy higher incomes. The Census Bureau recently released its estimates of the lifetime earnings for men and women based on level of educational attainment. Presumed earnings for persons 18-64 years old, in 1981 dollars, are as follows:

Table 2
Lifetime Earnings and Level of Education

Sex	High School Graduates	Four-Year College Graduates
Men	$860,000-$1,870,000	$1,200,000-$2,750,000
Women	$380,000-$ 800,000	$ 520,000-$1,120,000[7]

During the last twenty years, ratios of lifetime earnings for men with different levels of education have not varied much; they can be summarized as follows (comparable data for women are not available):

1) Male high school graduates will earn about one-third more than their peers who completed only elementary education, and
2) Male college graduates will make about one-half to three-fifths more than men with only high school diplomas.[8]

Freeman may be correct in stating that the earnings enjoyed by college graduates who entered the labor market in the 1960s were not matched by typical graduates in the 1970s; but he also assumed that the fear of decreased economic advantages would discourage youth from entering college and cause steep enrollment declines in the early 1980s. In contrast to Freeman's prediction, enrollment levels to date have remained relatively stable in spite of shrinking classes of recent high school graduates. Large numbers of Americans have apparently taken the view that, if the relative advantage has changed, the personal, social, or economic gains from their investment in postsecondary education remain strong.

Outlook for College Graduates

What then is the general outlook for college graduates? Traditionally, job opportunities for college-educated workers have stemmed from three sources:

- educational upgrading, where college graduates are hired for jobs once performed by workers with less education;
- growth in employment in occupations currently requiring a college degree for entry; and
- the need to replace workers in such occupations who die, retire, or leave the labor force for other reasons.[9]

Of the three sources of jobs listed above, most openings in the near future will be due to replacements.

Assuming a moderate growth in the economy between now and 1995, the Bureau of Labor Statistics predicts that 12-13 million college graduates will be needed for jobs during this time period. At the same time, it is predicting that a larger number, about 15 million graduates, will be ready to enter the market. Notably, only three-fifths of these workers will be recent graduates; the remaining two-fifths will be graduates entering or returning to the labor market after delays due to family responsibilities, graduate education, or military service.[10] This tremendous "hidden supply" of educated workers cannot be overlooked. In fact, there is an estimated reserve pool of 1 million teachers in society; at present probably only 1 in 10 is actively seeking employment.[11]

Educational upgrading, a second source of job opportunities, is one outcome of the surplus of college graduates. Since the 1970's there has been a continued trend of "upgrading" by employers; here college graduates are hired as the best available candidates into positions that did not previously require a college degree for entry. Educational upgrading in the past has occurred mostly in management and non-retail sales jobs.

However, educational upgrading takes place for reasons other than just the abundance of college-educated persons; computerized design and manufacturing operations, biological research, and medical care are fields where expanding technology necessitates personnel with higher educational levels than ever before. A higher proportion of graduates also are projected to be needed in administrative, sales and farm occupations, reflecting long-term trends toward increased complexity in many of these jobs.

Although the large majority of professional and technical workers are college graduates, the percentage of college graduates in other occupational categories also can be expected to rise as the general population becomes more educated. Table 3 demonstrates that a growing proportion of college graduates are being employed in occupations other than the traditional professional and managerial categories.

Table 3

Occupations Of College Graduates, Ages 25 to 64

Occupation	1970	1982
Total number of graduates (Thousands)	8,616	18,943
Percent	100.0%	100.0%
White-collar workers	94.1	89.6
Professional and technical	64.6	53.9
Managers	16.2	20.1
Sales	6.6	7.7
Clerical	6.6	7.8
Blue-collar workers	3.9	6.0
Crafts	2.4	3.6
Operatives, except transport	.8	1.2
Transport equipment operatives	.3	.5
Nonfarm laborers	.3	.7
Service workers	1.4	3.5
Farmers and farmworkers	.7	.9[12]

Note: Data for 1970 are from the decennial Census. Data for 1982 are from special tabulations of the March 1982 Current Population Survey.

Labor Market Growth

The Bureau of Labor Statistics (BLS) periodically projects the overall growth of the labor market. The most recent projections are for the period 1982-95 and reflect the results of the 1980 Census.

Several basic demographic and economic assumptions underlie these forecasts. Between now and 1995, the number of persons 25-64 years old in the labor force is expected to grow faster than the total labor force; also youth (16 - 24 years old) will constitute a much smaller proportion of the population than they did during the last twenty years. These trends are due to the aging of the baby-boom generation and the subsequent decline in birth rates.[13] On the economic side, the "moderate growth" projection of the BLS assumes that business will rebound from the 1982 recession and then slow down through 1995, and that unemployment will average around 6 percent in the early 1990s.[14] Also, the participation of women in the labor force is expected to increase steadily. Two-thirds of women 20-45 years old are currently employed or looking for work; by 1995, that proportion may rise to four-fifths.[15]

In the years ahead it is important to recognize that general measures of productivity cannot be assumed to translate automatically into job growth or employment opportunities for an industry. For example, the fields of banking and financial services are expected to show very large gains in service productivity in the next few years. Yet, hiring in these fields will not substantially improve because banks will make increased use of automatic teller machines and computerized stock transactions.

Table 4

Projected Change in Employment for College-Educated Workers, by Occupation 1982-1995

Much faster than average[a]	Faster than average[b]	Average[c]	More slowly than average[d]	Little change[e]
Computer Programmers	Accountants & Auditors	Automotive Body Repair	Agricultural Scientists	Air Traffic Controllers
Computer Service Technicians	Actuaries	Broadcast Technicians	Aircraft Mechanics	Clergy
Computer Systems Analysts	Architects	Chiropractors	Bookkeepers & Accounting Clerks	Drafters
Electrical and Electronic Technicians	Bank Officers & Managers	Chemists	Counselors	
Electrical Engineers	Biological Scientists	Commercial & Graphic Artists & Designers	Foresters & Conservationists	
Health Services Administrators	Chemical Engineers	Cosmetologists	Librarians	
Legal Assistants	Civil Engineers	Diesel Mechanics	Photographers	
Mechanical Engineers	Clinical Laboratory Technologists	Dentists	Secondary School Teachers	
Occupational Therapists	Dancers	Economists	School Administrators	
Podiatrists	Dental Assistants	Geologists & Geophysicists	Urban & Regional Planners	
Physical Therapists	Dental Hygienists	Hotel Managers		
Tool Programmers	Designers	Mathematicians		
	Dietitians	Mining Engineers		
	Electrocardiograph Technicians	Musicians		
	Electroencephalographic Technicians	Optometrists		
	Health Record Technicians	Personnel & Labor Relations		
	Industrial Engineers	Physician Assistants		
	Kindergarten & Elementary teachers	Public Relations Specialist		
	Lawyers	Radio & TV Announcers		
	Licensed Practical Nurses	Recreation Workers		
	Medical Assistants	Reporters & Correspondents		
	Nuclear Engineers	Secretaries		
	Physicians	Singers		
	Physicists	Social Workers		
	Psychologists	Sociologists		
	Radiologic Technologists	Speech Pathologists & Audiologists		
	Registered Nurses			
	Respiratory Therapists			
	Surgical Technicians			
	Surveyors			

[a]Employment is projected to increase 50 percent or more
[b]Employment is projected to increase 30 to 49 percent
[c]Employment is projected to increase 20 to 29 percent
[d]Employment is projected to increase 6 to 19 percent
[e]Employment is projected to increase or decrease 5 percent

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Occupational Projections and Training Data*, 1984 edition, Washington, DC: GPO, 1984, pp. 11-74.

Built into economists' forecasts are continued trends in employment opportunities by type of worker, as shown below:

Type of Worker	Rate of Expected Growth 1982-1995
• Professional, technical and service workers	• Faster than average
• Managers, sales and craft workers	• Average
• Operatives, laborers, private household workers, and farmers	• Slower than average

If the BLS economic and demographic assumptions hold, what can we expect in the next ten years? Most of the additional 25.2 million new jobs which will be generated between 1982 and 1995 will take place in service-producing industries. Specifically, almost three-fourths of the new jobs should be in: transportation; telecommunications; public utilities; trade; finance; insurance; real estate; medical care; hotels; nonprofit organizations; and business, personal, and professional services.[16]

The BLS projects changes in about 1,700 specific occupations; these projections include fields which employ many college-educated workers. Table 4 summarizes the projected changes in employment for persons with postsecondary education. Some key occupational categories are:

- Health:
  Two reasons this field will continue its rapid expansion are 1) continued population growth (especially the elderly), and 2) expansion of health care insurance coverage. Forecasts are generally favorable for medical professionals as well as technologists and technicians.[17]
- Engineering:
  For most specialties within the broad field of engineering, the future is optimistic, with faster growth than for most other jobs. The outlook is particularly good for aeronautical, electrical, and industrial engineers.
- Computer Science:
  Strong demand continues for systems analysts, computer programmers and service technicians. The outlook is also bright for computer sales and management personnel.
- Education:
  Here job opportunities are tied to population trends at the primary and secondary level. The recent rise in the number of births and the increased participation of mothers in the workplace should increase the demand for preschool, kindergarten, and elementary education teachers. However, the current decline in the high school age population will temporarily reduce openings at the secondary level. The postsecondary outlook is mixed; more growth is expected for positions in adult and vocational education than in college teaching.

Underemployment and Job Satisfaction

As college graduates accept more diverse jobs than ever before, questions arise concerning underemployment and job satisfaction. One College Placement Council (CPC) study reported that, ten years after entering college, three-fifths of the graduates were very satisfied with their jobs; even among graduates who were employed in nonprofessional roles, almost half were pleased with their work.[18] Another CPC study concluded that younger workers usually expressed more dissatisfaction and underemployment than did older, more experienced workers.

Underemployment to some extent also was reported by one-fifth of recent college graduates who were followed up in studies by the National Center for Education Statistics. More cases of underemployment were recorded among those who had majored in psychology, public affairs, and the humanities than among graduates in the health, scientific and engineering fields.

In the CPC studies, the relationship of the job to the person's major was not necessarily the prime determinant of job satisfaction. Likewise, higher salaries alone did not guarantee enjoyable working conditions. Components of jobs that were important to college graduates included:

—the opportunity for advancement,
—a variety of work activities,
—higher-than-average job status and salary, and
—congenial work relationships.[19]

Above all, the CPC studies documented that satisfying jobs were those that challenged the graduates.

Student Responses to Labor Market Shifts

Evidence that labor market shifts affect students' decisions is found below; intended majors of first-time, full-time freshmen in 1973 and 1983 are compared:

Table 5

Intended Majors of First-Time, Full-Time Freshmen

Intended Major	1973	1983
Business	17.7%	24.4%
Engineering	6.6%	11.7%
Education	12.2%	6.0%[20]

Once touted as safe insurance against unemployment ("Well, you can always get a teaching job"), majors in education steadily declined over the past decade when teaching positions became harder to secure.

Although students appear to see the practical advantages of a major in business, they have not all decided to become computer programmers, as some liberal arts defenders have feared. Rather, many students visualize computers as tools which can be used in a variety of careers. A recent survey indicates that over one-third of entering full-time freshmen had written a computer program prior to entering college in 1983, whereas, less than one-tenth saw computer programming as their primary career goal.[21]

Conclusion

Economists and demographers both agree that the labor market for college graduates will remain tight for at least the near future. There will be a slight surplus of college graduates produced relative to the economy's demand for highly educated workers; this imbalance will likely mean that, through 1995, one in four graduates will accept employment in a position that traditionally has not required a college-trained worker.

While it is difficult to predict what future unemployment levels will be or when cycles of recessions will occur, we do know that the general population is becoming more educated. In 1970, 13 percent of the adult labor force had college degrees; in just 13 years, the figure was 20 percent.[22] Problems of underemployment and initial job dissatisfaction will persist for some, but recent research indicates that college-educated manpower will enjoy a competitive advantage in hiring, salaries and promotion over their less-educated colleagues.

Getting a Job: What Works

- **Think Ahead:**
  Learn more about possible careers through campus planning and placement centers; but don't wait until your last semester or until you're ready to get a job. Ask what your campus has learned about job opportunities from recent graduates, and from those who have been employed for a longer time.

- **Be Flexible:**
  As individuals advance in their careers, vocational interests may change, some jobs will become obsolete, and new ones will be created. The credential of a college degree is important not only in securing a first job but throughout a career. Examine the growth potential in traditional and nontraditional employment areas to see whether there is possibility for advancement.

- **Sharpen Your Skills:**
  When asked what they **should** have done while enrolled, many recent graduates said they should have taken more courses in Language (both English and foreign), Business Administration, Mathematics, and Psychology to sharpen their communication, administrative, quantitative, and interpersonal skills. Be aware that many recent graduates will have been exposed to the uses of computers.

- **Learn to Communicate:**
  Analyze your skills both in and out of a classroom so that you can communicate them to prospective employers. Good oral and written skills can be your most prized assets.

- **Get Some Experience:**
  Take advantage of college internships, cooperative education programs (where full-time classes and work are alternated), and full- and part-time jobs to blend education and work. Through actual work experience, people learn how to relate their educational training to the requirements of work.

- **Educate Yourself:**
  Investigate the market you are interested in (metropolitan, state, or regional). Find out what local forecasters predict about specific fields. For example, in a 1970-1980 manpower study from the Southern Regional Educational Board, an oversupply of engineers was expected in West Virginia while Maryland was predicted to have a shortage.[23]

FOOTNOTES

[1]This report should be useful to any postsecondary student seeking employment. Due to the unavailability of more complete data, some of the tables presented include information on four-year graduates only.

[2]Anne McDougall Young and Howard Hayghe, "More U.S. Workers are College Graduates", *Monthly Labor Review*, March 1984, p.47

[3]"Education has Little Impact on Minority Unemployment, Study Finds," *Higher Education Daily*, November 29, 1982, p. 2

[4]Stanford University researcher Russell Rumberger recently reported that government agencies employ from one-third to two-thirds of minority and female college graduates. Bureau of National Affairs, *Employment and Training Reporter*, Vol. 14, No. 35, May 11, 1983, p. 1131.

[5]Janet L. Norwood, "The Job Outlook for College Graduates Through 1990," *Occupational Outlook Quarterly*, Winter 1979, p. 6.

[6]Andrew Kolstad, "Does College Pay? Wage Rates Before and After Leaving School," *NCES Bulletin*, November 1982, p. 5.

[7]"College Degree Increases Lifetime Earnings by 40 Percent,"*Higher Education Daily*, March 15, 1983, p. 3.

[8]Cecilia Ottinger, editor, *Fact Book on Higher Education*, 1984-85 (Washington, DC: American Council on Education, 1984), p. 16.

[9]"Relating Training to Occupational Needs," *Occupational Manpower and Training Needs*, Department of Labor, Bureau of Labor Statistics, 1974, p. 26.

[10]Jon Sargent, "The Job Outlook for College Graduates During the 1980's," *Occupational Outlook Quarterly*, Summer 1982, p. 6.

[11]Martin Frankel and Debra E. Gerald, *Projections of Education Statistics to 1990-91, Volume 1* (Washington, DC: National Center for Education Statistics, 1983), p.75.

[12]Young and Hayghe, p. 47

[13]Howard N. Fullerton, Jr. and John Tschetter, "The 1995 Labor Force: A Second Look," *Monthly Labor Review*, November 1983, p. 3.

[14]Valerie A. Personick, "The Job Outlook Through 1995: Industry Output and Employment Projections," *Monthly Labor Review*, November 1983, p. 25.

[15]Bryant Robey and Cheryl Russell, "A Portrait of the American Worker," *American Demographics*, March 1984, p. 17.

[16]Personick, p. 24.

[17]In spite of favorable forecasts from the BLS, escalating premiums paid by some employers have caused speculation that health care insurance coverage cannot continue to expand at its current rate. If businesses reduce health care coverage, employment opportunities for health professionals and support staff will be adversely affected.

[18]Ann Bisconti and Lewis C.Solmon, *Job Satisfaction After College—The Graduate's Viewpoint* (Bethlehem, Pennsylvania: College Placement Council Foundation, 1979).

[19]Nancy L. Ochsner and Lewis C. Solmon *College Education and Employment—The Recent Graduates* (Bethlehem, Pennsylvania: College Placement Council Foundation, 1979), p. 104.

[20]Alexander W. Astin, Margo R. King, John M. Light, and Gerald T. Richardson, *The American Freshman: National Norms for Fall 1973* (Los Angeles: University of California, Los Angeles, 1973), p. 43, and Alexander W. Astin, Kenneth C. Green, William S. Korn, and Mary Jane Maier, *The American Freshman: National Norms For Fall 1983* (Los Angeles: University of California, Los Angeles, 1983), p. 46.

[21]Astin, Green, Korn and Maier, pp. 48, 50.

[22]Robey and Russell, p. 19.

[23]Richard A. Engels and Eva C. Galambos, *Supply and Demand Balances of Selected College-Level Fields Projected for the SREB States* (Atlanta: Southern Regional Education Board, 1975), p. 11.

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